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Approved by J. S.

Product

PermaFlex® IP6000 Lustex®

Permacolor®

The **Permacolor** system is a series of pressure sensitive products for mounting and overlaminating in the imaging industries. Pressure sensitive **Permacolor** provides fast, efficient processing through cold roll lamination techniques without the need for heat, drying or messy coating operations.

Product Description

The **PermaFlex overlaminating films** is a family of relatively thick films that are coated with pressure sensitive adhesive on one side. These unique films can be laminated to either one or both sides of photographic prints, transparencies and digital images (inkjet, electrostatic, and thermal) to impart protection, surface texture and enough rigidity to eliminate the need for mounting to traditional flat substrates in many applications. These laminates also retain enough flexibility to allow images to be used in non-flat configurations such as on cylindrical displays. This feature also permits the laminates to be rolled for easy shipping or storage.

IP6000 is a 15-mil film with a special “**Lustex**” surface. The low gloss texture helps eliminate glare and provides a very unique and pleasing viewing surface. This product can be used as an overlaminate for indoor as well as outdoor applications. **IP6000** not only provides protection from abrasion and moisture, it also helps retard color fade caused by ultra violet (UV) light exposure. **IP6000** exceeds industry standards for slip resistance, when tested according to ASTM D2047.

Physical Properties

| Property | Typical Values | Test Method |
|--|---------------------|-----------------------------------|
| Thickness inches (µm) Film and Adhesive | 0.0165 (419) | ASTM D-645 |
| Flame Resistance Flame Spread Smoke Developed ANSI, NFPA and IFC | 10 70 Class A | ASTM E-84 |
| Static Coefficient of Friction (Slip Resistance) Dry floors ≥ 0.5, Wet surfaces & Handicap accessible routes ≥ 0.6, Ramps ≥ 0.8 Dry Neolite Wet Neolite | 0.60 0.79 | ASTM C 1028 SGS US Testing Co. |

| | | |
|--|---|--|
| White light Transmission | 92% (Note: Glass = 100%) | Mactac CTM-67 |
| Gloss (60° angle) | 12 | ASTM D-523 |
| Adhesive pH | Neutral | TAPPI –529 |
| Temperature Ranges Application for best results: End Use: | Above 50°F (10°C) -20° to 200°F (-29° to 93°C) | |
| Direct Food Contact | FDA conditions of Use B through H | 21 CFR 177.1580 Subsections (a), (b) &(c) |
| Co-efficient of Expansion | 1.7 X10 ⁻⁵ in/in/°C | ASTM D696 |

Durability

The durability of the film is 2-3 years in vertical (90±5°) applications outdoors and 3 -5 years indoors. While all Permacolor overlaminating films have UV resistance built in to help extend the life of your image, the durability of the image is mainly dependent upon the quality of the inks (see technical data sheets given by the ink manufacturers) and pressure sensitive media being used.

Shelf Life

Two years when stored at 75°F (24°C) and 50% relative humidity or less. Note: Mactac recommends that rolls be stored on end or suspended from the core.

Limitations

- 1) The user is responsible for determining the product's suitability, including adhesion and if needed, removal characteristics when used in applications other than listed specifically in this Performance Guide.
- 2) If there are any questions about applications, please contact your Mactac sales representative to discuss your requirements for recommendations.
- 3) If this is a printed Performance Guide it is an uncontrolled document. Please check the Mactac website for the latest, most up-to-date version.

Recommendations for Rolling and Shipping Laminated Images

Mactac studies and field surveys with numerous customers using Permacolor® laminates in rolled-up graphic applications, leads to the following recommendations for rolling and shipping laminated images:

1. **Prior to rolling graphics:**
 - a) A 2 - 4 hour wet-out period is strongly recommended for the adhesive system to build to ultimate adhesion. This will significantly improve your success with rolled-up graphics.
2. **For single-side laminated images:**
 - a) Roll laminated side out for shipping and storage.
 - b) An inside roll diameter of 3 - 5 inches, minimum, is recommended for graphics with *less than 10 mil total graphic thickness* (includes imaged media and Permacolor overlaminates).
 - c) For images with a *total thickness of 10 mils or greater* an inside roll diameter of 10 - 12 inches, minimum, is recommended.

3. **For images laminated on both front and back sides:**

- a) Roll images with the thicker laminate to the outside for shipping and storage. For example: if your image has 5 or 10 mil Polycarbonate on the front and 15 mil Polycarbonate on the back (for additional stiffness), roll the graphic with the 15 mil PermaFlex® side out.
- b) All double laminated images should be rolled with an inside roll diameter of 10 - 12 inches minimum. Remember that a larger inside diameter is better.

Please keep in mind that this is a **recommendation**, individual experience should not be discounted. We recognize that different laminators and laminating methods may produce different results. The recommendations above represent our experience as having the “greatest” success in the field.

- *Values given are typical and are not necessarily for use in specification.*

IMPORTANT NOTICE: The information given and the recommendations made herein are based on our research and are believed to be accurate, but no guarantee of their accuracy or completeness is made. In every case, user shall determine before using any product in full scale production, or in any way, whether such product is suitable for user's intended use for their particular purpose under their own operating conditions. User assumes all risk and liability whatsoever in connection with their use of any product. The products discussed herein are sold without any warranty as to merchantability or fitness for a particular purpose, or any other warranty, express or implied. No representative of ours has any authority to waive or change the foregoing provisions, and no statement or recommendation not contained herein shall have any force of effect unless in an agreement signed by the officers of seller and manufacturer. Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent without authority from the owner of the patent. The following is made in lieu of all warranties, express or implied: Seller's and manufacturer's only obligation shall be to replace or credit such quantity of the product proved to be defective at its discretion.

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